The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method for making carboxylated cellulosic fibers, comprising:

reacting an N-halo hindered cyclic amine compound with secondary oxidizing agent to provide a primary oxidizing agent; and

contacting the primary oxidizing agent with cellulosic fibers to provide carboxylated cellulosic fibers.

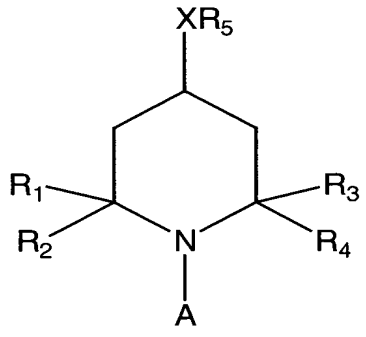
2. The method of Claim 1, wherein the N-halo hindered cyclic amine compound comprises a cyclic amine compound that is fully alkylated at the carbon atoms adjacent to the amino nitrogen atom.

3. The method of Claim 1, wherein the N-halo hindered cyclic amine compound comprises a cyclic amine compound having from 4 to 8 atoms in the ring.

4. The method of Claim 1, wherein the N-halo hindered cyclic amine compound comprises a five-membered ring compound.

5. The method of Claim 1, wherein the N-halo hindered cyclic amine compound comprises a six-membered ring compound.

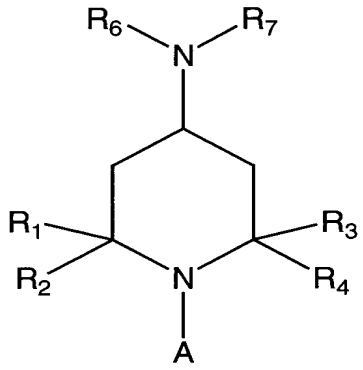
6. The method of Claim 1, wherein the N-halo hindered cyclic amine compound has the structure:



wherein R_1-R_4 are independently at least one of C1-C6 straight-chain or branched alkyl, or R_1 and R_2 taken together can form a five- or six-carbon cycloalkyl, or R_3 and R_4 taken together can form a five- or six-carbon cycloalkyl; X is oxygen or sulfur; R_5 is at

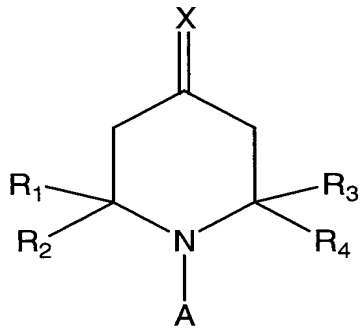
least one of hydrogen, C1-C12 straight-chain or branched alkyl or alkoxy, aryl, aryloxy, benzyl, 2-dioxanyl, dialkyl ether, alkyl polyether, or hydroxyalkyl; and A is at least one of chloro or bromo.

7. The method of Claim 1, wherein the N-halo hindered cyclic amine compound has the structure:



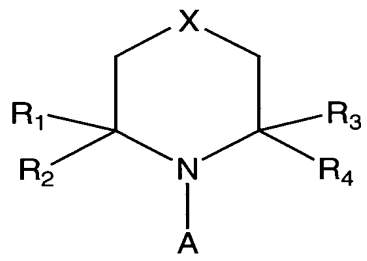
wherein R_1-R_4 are independently at least one of C1-C6 straight-chain or branched alkyl, or R_1 and R_2 taken together can form a five- or six-carbon cycloalkyl, or R_3 and R_4 taken together can form a five- or six-carbon cycloalkyl; X is oxygen or sulfur; R_6 is at least one of C1-C6 straight-chain or branched alkyl; R_7 is at least one of hydrogen, C1-C8 straight-chain or branched alkyl, phenyl, carbamoyl, alkyl carbamoyl, phenyl carbamoyl, or C1-C8 acyl; and A is at least one of chloro or bromo.

8. The method of Claim 1, wherein the N-halo hindered cyclic amine compound has the structure:



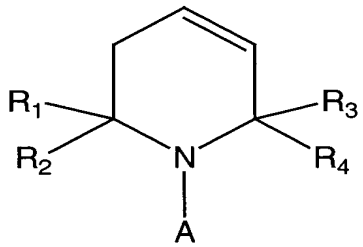
wherein R_1-R_4 are independently at least one of C1-C6 straight-chain or branched alkyl, or R_1 and R_2 taken together can form a five- or six-carbon cycloalkyl, or R_3 and R_4 taken together can form a five- or six-carbon cycloalkyl; X is at least one of oxygen, sulfur, NH, alkylamino, dialkylamino, NOH, or NOR_{10}, wherein R_{10} is a C1-C6 straight-chain or branched alkyl; and A is at least one of chloro or bromo.

9. The method of Claim 1, wherein the N-halo hindered cyclic amine compound has the structure:



wherein R_1-R_4 are independently at least one of C1-C6 straight-chain or branched alkyl, or R_1 and R_2 taken together can form a five- or six-carbon cycloalkyl, or R_3 and R_4 taken together can form a five- or six-carbon cycloalkyl; X is at least one of oxygen, sulfur, N-R_{10}, or N-C(=O)-R_{10}, wherein R_{10} is a C1-C6 straight-chain or branched alkyl; and A is at least one of chloro or bromo.

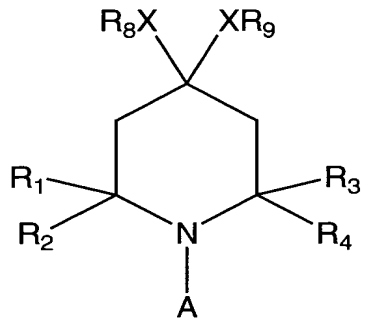
10. The method of Claim 1, wherein the N-halo hindered cyclic amine compound has the structure:



wherein R_1-R_4 are independently at least one of C1-C6 straight-chain or branched alkyl, or R_1 and R_2 taken together can form a five- or six-carbon cycloalkyl, or R_3 and R_4

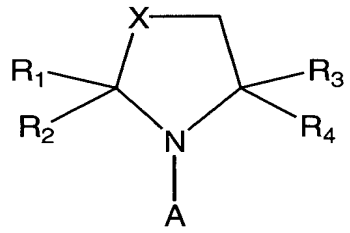
taken together can form a five- or six-carbon cycloalkyl; and A is at least one of chloro or bromo.

11. The method of Claim 1, wherein the N-halo hindered cyclic amine compound has the structure:



wherein R_1-R_4 are independently at least one of C1-C6 straight-chain or branched alkyl, or R_1 and R_2 taken together can form a five- or six-carbon cycloalkyl, or R_3 and R_4 taken together can form a five- or six-carbon cycloalkyl; X is at least one of methylene, oxygen, sulfur, or alkylamino; R_8 and R_9 are independently at least one of C1-C6 straight-chain or branched alkyl groups, or R_8 and R_9 taken together can form a five- or six-membered ring; and A is at least one of chloro or bromo.

12. The method of Claim 1, wherein the N-halo hindered cyclic amine compound has the structure:



wherein R_1-R_4 are independently at least one of C1-C6 straight-chain or branched alkyl, or R_1 and R_2 taken together can form a five- or six-carbon cycloalkyl, or R_3 and R_4 taken together can form a five- or six-carbon cycloalkyl; X is at least one of methylene,

oxygen, sulfur, NH, N-R_{10}, or N-C(=O)-R_{10}, wherein R_{10} is a C1-C6 straight-chain or branched alkyl; and A is at least one of chloro or bromo.

13. The method of Claim 1, wherein the primary oxidizing agent is at least one of chlorine dioxide, a peracid, hydrogen peroxide, ozone, or a hypohalite.

14. The method of Claim 13, wherein the hypohalite comprises sodium hypochlorite.

15. The method of Claim 1, wherein the carboxylated fibers comprises C-6 carboxyl groups.

16. The method of Claim 1 further comprising stabilizing the carboxylated fibers.

17. The method of Claim 16, wherein stabilizing the carboxylated fibers comprises treating the carboxylated fibers with a reducing agent.

18. The method of Claim 17, wherein the reducing agent is at least one of sodium borohydride, lithium borohydride, or sodium cyanoborohydride.

19. The method of Claim 16, wherein stabilizing the carboxylated fibers comprises treating the carboxylated fibers with an oxidizing agent.

20. The method of Claim 19, wherein the oxidizing agent is at least one of sodium chlorite, chlorine dioxide, or hydrogen peroxide.

21. A method for making stable carboxylated cellulosic fibers, comprising:

reacting an N-halo hindered cyclic amine compound with secondary oxidizing agent to provide a primary oxidizing agent;

contacting the primary oxidizing agent with cellulosic fibers to provide carboxylated cellulosic fibers; and

treating the carboxylated cellulosic fibers with a stabilizing agent to provide stabilized carboxylated cellulosic fibers.

22. The method of Claim 21, wherein the N-halo hindered cyclic amine compound is an N-chloro-2,2,6,6-tetramethyl-4-piperidone ketal.

23. The method of Claim 21, wherein the N-halo hindered cyclic amine compound is N-chloro-2,2,6,6-tetramethyl-4-piperidone ethylene glycol ketal.

24. The method of Claim 21, wherein the secondary oxidizing agent is at least one of chlorine dioxide, a peracid, hydrogen peroxide, or ozone.

25. The method of Claim 21, wherein the stabilizing agent is a chlorite.